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Supervisor: L.A. Sobinova, PhD, Art. Lecturer, Department of Foreign Languages Institute for Energy TPU.

COMMUTATORLESS MOTORS AS A SOURCE OF ENERGY FOR DRONES

K.O. Teuschakov, G.A. Nizkodubov
Tomsk Polytechnic University

The institute of Power Engineering, group №5G53

The drone is a flying device that moves by controlling the rotation speed of engines with propellers. The principle of work of the drone is based on rotation of propellers to the opposite sides. Because of the simplicity of the design drones are often used in amateur modeling, they are convenient for taking photos and shooting videos.

History

One of the first drone that was able to stay in the air was created by George de Bothezat and was tested in 1922.

Basic parts of a drone

- Framework – the basis of the whole structure, which connects all the other parts. Should be strong and at the same time light.
- Engines, which provide the required thrust to lift the quadcopter in the air.
- Propellers
- Power supplies
- Sensors of acceleration / angle of cant
- Microcontroller – the brain of the device
- Remote control for the device
- Extra equipment

The frame is designed to connect all the components of the structure in the single whole. It must be pretty strong and at the same time have the ability to extinguish the vibration of the rotors.

When choosing an engine, you first need to define the flight weight for your drone so that the thrust will be able to get the drone off the ground.

The main condition is that the thrust should be twice stronger than the maximum flying weight of the structure.

Insufficient engine thrust will lead to poor handling or the inability of the machine to take off.

Modern drones use commutatorless motors as a source of energy. They have specific limitation of their flight characteristics: typical weight of a drone varies from 1 kg to 4 kg and their flight time varies from 10 to 30 minutes (There are some unique drones that have the flight time about 40-50 minutes).

The drone can lift about 500g – 3 kg that allow taking a small camera.

ENVIRONMENTAL PROBLEMS

A.O. Shlykova

Tomsk Polytechnic University

Institute of Power Engineering, Department of Steam Generating Machinery Engineering, 5B41

The purpose of this work is to illustrate why the degree of water, air and soil pollution increases year after year and is considered to be a serious international problem.

Introduction

Although we live on the Earth and have to control over much of our environment, the Earth does not belong to us. It is also home for plants, animals, insects, birds and fish, and it will be home for future generations of humans. Because of this, we have a responsibility to protect the environment.

Major environmental problems

Nowadays, most of the Earth's major environmental problems, such as the holes in the ozone layer, have been caused by humans and we are the only ones able to solve them. We have to start recognizing that our actions can lead to environmental damage.

Solutions

First and foremost, a lot of people still think that there is little they can do to help the environment. They are sure that it is the duty of the government and big companies to make our planet cleaner: to recycle waste materials, to protect rare animals and plants, to install antipollution equipment and so on. But they are wrong. Everybody must take part in reducing pollution. And in our research, we suggest some of the ways.

1. Recycling centers

What is more, there is still a lot of rubbish everywhere. Many people have always polluted their surroundings. Recycled waste can be made into new products and it can help save natural resources. To my mind, it would be great if recycling centers paid people for the rubbish they brought in.

2. Protection method of environmental

Finally, I strongly feel that education is extremely important. For example, if people learn to recycle their waste, instead of just throwing it away, we will not have to destroy the countryside. Landfill sites will not have to be constructed, and factories, which pollute the atmosphere, will not have to produce so many new products.